Brewster, Massachusetts
Water Quality report
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Health director
(508)896-3701
Health Regulation
Adopted: 1987
Revised: 1988

Town of Brewster

OFFICE OF:
BOARD OF HEALTH

Brewster, Massachusetts 02631

APPLICATION FEE: $250.00

WATER QUALITY REPORT

In accordance with the Massachusetts General Laws, Chapter 111, Section 31, the Brewster Board of Health hereby adopts the following regulation:

The Town of Brewster finds that the Board of Health's Water Quality Report Regulations shall be applicable to all proposed Definitive Subdivision Plans that are submitted to the Planning Board, reviewed by the Board of Health and described in the following sentences. All multi-family developments having four or more dwelling units, hotels, hospitals, and all non-tesidentia developments discharging 2000 gallons or more of wastewater effluent per day must comply with these regulations. In addition, any other multi-development unit not currently defined may be required to comply with these regulations following a determination of applicability at a show-cause hearing. Excluded are developments having less than 2,000 gallons per day wastewater effluent or where the proposed residential density is less than one unit per two acres Any debeloper who seeks to discharge privately owned treatment works effluent from any of the aforementioned uses to groundwater shall also be required to obtain Board of Health approval to do so.

In addition, any other multi-development unit not currently defined may be required to comply with these regulations following a determination of applicability at a show-cause hearing. Excluded are developments having less than 2,000 gallons per day wastewater effluent or where the proposed residential density is less than one unit per two acres.

In applying to the Board of Health, the information shall be submitted in accordance with, "Hydrogeologic Study Guidelines" - (Attachment A). The information submitted to the Board of Health must demonstrate that no significant impact to water resources will occur as a result of the project, and that the nutrient contribution of the proposed project, when added to the existing and

potential nutrient level of other developments and acreage withir the specific recharge area will not result in nutrient levels that exceed the receiving water's critical eutrophic level or in the case of drinking well recharge areas, nitrate-nitrogen concentrations in the well in excess of (5) parts per million.

Variances to this regulation may be granted by the Board of health, after a hearing, during which the applicant proves that the installation of sewage disposal system will not adversely affect surface or sub-surface public or private water resources of:

1. The lot subject to the application
2. The adjacent land (whether developed or not)
3. A defined aquifer recharge area
4. Any shellfish or recreational waters

In granting variances, the Board will take into consideration population density of the area, the size and shape of the lot, slope, the suitability of the soil for drainage and percolation, existing and known future water supplies, depth to ground water and impervious material and area reserved for expansion of sewage system and relocation of water supply in case of failure.

SEVERABILITY CLAUSE:

Whenever possible, these regulations shall be deemed to be supplementary to (not contradictory with) state and federal statutes and regulations.

In the event any of these regulations shall be held invalid, any such regulation or regulations shall be deemed to be severed from the others and struck from these rules, but the remaining regulations shall continue in full force and effect.

Whoever personally or by his or her servant or agent of any firm or corporation violates these rules and regulations shall be punished by a fine of not more than two hundred dollars per day for each such violation.

ADOPTED: December 15, 1987
AMENDED: January 5, 1988
EFFECTIVE: January 15, 1988

Paula J. Champagne, Chairman

Terence N. Hayes, Vice-President

John M. Mulkey, Member-at-Large

Barbara A. Vaughn, Town Clerk

HYDROGEOLOGIC STUDY GUIDELINES

1. Base map detailing should include:

A. Existing surface water bodies and wetlands

B. Location of Existing wells and septic systems for abutting properties

C. Existing and planned land surface elevatiions

D. Groundwater contours at minimally two feet (2') intervals unless otherwise specified to determine groundwater elevations above sea level.

E. Detailed description of proposed project, including: location of planned septic Systems, water supply wells, residential dwellings, lawn areas, paved areas, etc.

2. If in a zone of contribution to a private or public water supply well or within the recharge zone of a fresh or saltwater surface body the background information on environmental conditions should be sufficiently detailed to evaluate the following:

A. The existing condition of ground and surface water quality, including physical characteristics and water chemistry. Measurement of existing water quality must be adjusted for summer (peak population) conditions. Measurements shall specifically include concentrations of total phosphorus if in the recharge zone of a freshwater pond; nitrate-nitrogen if in the recharge zone of a saltwater pond or embayment; and nitrate-nitrogen if in a zone of contribution to a private or public water supply well.

B. Subsurface geology

C. Surface drainage patterns

D. Water table contours and groundwater flow direction.

3. Prediction of impacts from the project should be determined for:

A. Groundwater

1. The project proponent should prepare a solute transport model of the wastewater plume based on anticipated wastewater loading and groundwater contours. The plume model should show the dimensions of the plume and contaminant concentrations 1,5,10 & 20 years after start up at various points as specified by the Board of Health. Impacts of wastewater contamination on public and private wells, surface water bodies, coastal water, and wetlands must be considered.

ATTACHMENT A Page II HYDROGEOLOGIC STUDY GUIDELINES

2. Calculate nitrogen loading rate if within a zone of contribution to an existing or proposed public or private water supply. Ir making a determination of the levels, in total pounds and in pounds-per-acre of nitrogen which will be generated by the project the following standards shall be used unless the applicant demonstrates to the satisfaction of the Board that other standards are applicable:

a. Loading per person: 5 lbs. nitrogen per person per year. Person per dwelling = 3.

b. Loading from lawn fertilizer: 3 lbs. nitrogen per 1000 square feet per year (with a minimum of 15 lbs. per lot in a single-family subdivision).

c. Loading from road runoff: .38 lbs. nitrogen per road mile per day.

d. Loading from precipitation: 2.5 lbs. nitrogen per acre per year.

3. When required determine the cumulative nutrient loading impact from the proposed project and the existing and potential loading from all other developments within the recharge area of the water supply well.

4. Compare on a per acre basis the total nitrogen loading from the proposed project with the loading rate that which would produce water supply nitrate-nitrogen levels in excess of five (5) parts per million.

B. Surface Waters (Lakes, ponds, coastal waters and wetlands)

1. Determine "limiting" nutrient in potentially affected surface water.

2. Calculate rate of flushing.

3. Calculate nutrient loading rate and compare, on a per acre basis, the total nutrient loading from the proposed project with the loading rate that would be expected to produce critical eutrophic levels in a surface water body (.O2mg/ litre total phosphorous in fresh water bodies, or .75mg/litre in salt water bodies).

4. When required, calculate the cumulative impacts of the proposed project and the existing and potential developments and acreage within the recharge area of the waterbody.

ATTACHMENT A - Page III HYDROGEOLOGIC STUDY GUIDELINES

5. In determining the impact on surface waters of phosphorous nutrient loading from a project, the following standards shall be used unless the applicant demonstrates to the satisfaction of the Board that other standards are applicable:

a. Loading per person: .25 lbs. per person per year for sewage disposal systems within 300 feet of the shore-line. Persons per dwelling unit = 3.

b. Loading from road runoff: .15 lbs. per curb mile per day.

c. Loading from lawn fertilizer: .17 lbs. phosphorous per 1000 square feet per year (with a minimum of .85 lbs. per lot in a single-family subdivision).